

## Chapter 4

### INSPECTION AND RELATED OPERATIONS

**NOTE:** AFMC forms and publications referred to in this chapter are for AFMC use only and are not available for general Air Force use.

#### ***Section 4A—Inspecting, Identifying, Condition And Status Marking, Tagging, and Labeling Of Property At U.S. Air Force Activities***

**4.1. Purpose.** This chapter provides standard AF methods and procedures for inspection and related operations such as identifying condition and status, marking, tagging and labeling of property at USAF activities. The contents of this chapter are applicable to all activities unless prescribed otherwise in the individual section.

**4.2. General.** This section prescribes and authorizes the use of certain identification, condition, and status markings, tags, and labels on property stored, manufactured, repaired, procured, and accounted for by the USAF. The markings, tags, and labels prescribed herein and the procedures established for their use will serve to indicate identity, condition, and status of property in the USAF.

#### **4.3. Relation to Previous Directives.**

4.3.1. Property received and stored prior to the effective date of this section and presently identified by means of previously authorized tags, labels, or markings will be exempt from the provisions of this section until such time as it is repacked, its condition or status is changed, or its identification is changed or obliterated.

4.3.2. This section in no way affects current directives relative to the markings, labeling, or stenciling of shipping containers at the time of shipment. The application of shipment markings, stencils, or labels will, however, be accomplished in such a manner that information relative to the contents is not defaced.

**4.4. Responsibilities.** It will be the responsibility of the commander of each AF activity to insure that qualified personnel are assigned as required to effect maximum surveillance through a minimum expenditure of effort in applying adequate identification, condition, and status markings to items received, stored, issued, and shipped.

**4.5. Definitions.** See **chapter 1, Attachment A-1**, for definitions.

#### **4.6. General Requirements for Marking, Tagging, and Labeling.**

4.6.1. Requirements for XD (Reparable) Items:

4.6.1.1. Incoming Shipments:

4.6.1.1.1. Identification: MIL-STD-129, *Marking For Shipment And Storage*, and MIL-STD-130, *Identification Marking For US Military Property*, prescribes identification marking requirements to be followed by contractors and AF activities. Barcode labels, machine/human readable markings, labels or tags are for identification purposes only. Identification on the outside container must match the DD Form 1348-1, *DOD Single Line Item Release/Receipt Document*, or DD Form 1348-1/1A, *Issue, Release/Receipt Document*. If the outside container does not match the DD 1348-1/1a, the container must be opened to properly identify the item. If the actual property does not match the DD 1348-1/1A, proceed to following Supply Discrepancy Report (SDR)/reports of discrepancy (ROD) procedures outlined in **paragraph 4.8**. DD Form 1574/-1 can be used to identify property so long as the remark field contains the statement: **ID PURPOSES ONLY**. However, under no circumstance will logistics personnel sign DD Form 1574/-1 as to the condition of an item.

4.6.1.1.2. Condition: Serviceable property should be accompanied with condition paperwork (DD Form 1574/-1 or contractor forms i.e., FAA, *Certificate Of Conformity*, DD Form 250, etc.) To include the inspector's name/signature or the inspector's stamp certifying the condition of the asset on the outside of the container. If condition paperwork is not located on the outside of the container, but the item is identified according to [paragraph 4.6.2.1.1.](#), and there is no suspected damage, the accompany DD 1348-1/1a will suffice as condition paperwork. The DD 1348-1/1A must be affixed to the outside container (packing slip) for originator tracing purposes. No further labeling/tagging or opening containers are required.

4.6.1.1.2.1. Exception: When items are of sufficient size as to make stenciling more appropriate due to outside storage and exposure to the weather, or when stenciling is preferred by AF activities. When stenciling is accomplished in lieu of tagging, the minimum information, which will be reflected will be the data contained on DD Forms 1574/1574-1 (i.e., bulk items).

4.6.1.1.3. If serviceable or unserviceable property can't be properly identified or the condition status is in question, an SDR must be processed prior to acceptance into the supply system as outlined in [paragraph 4.8.](#)

#### 4.6.1.2. Incoming Turn-Ins:

4.6.1.2.1. Identification and Condition: DD Form 1574/-1 must accompany all turn-ins for serviceable reparable assets and one must be placed on the outside of the container. The DD Form 1574/-1 must be completely filled out and contain a legible signature from a certified maintenance inspector stating the identification of the asset and the condition. No further labeling/tagging or opening containers are required. DD form 1574/-1 can be used to identify property so long as the remark field contains the statement: **ID PURPOSES ONLY** . However, under no circumstance will logistics personnel sign DD Form 1574/-1 as to the condition of an item.

4.6.1.2.1.1. Exception: When items are of sufficient size as to make stenciling more appropriate due to outside storage and exposure to the weather, or when stenciling is preferred by AF activities. When stenciling is accomplished in lieu of tagging, the minimum information, which will be reflected will be the data contained on DD Forms 1574/1574-1 (i.e., bulk items).

#### 4.6.2. Requirements For XB/XF (Expendable) Items:

4.6.2.1. Identification: Serviceable items being received, stored, issued, or shipped must be identified either through original containers or subsequent containers. Example: 100 bolts are received into your account in one clearly identified package. A shipment for 10 bolts is requested from your account. The supply technician would place the 10 bolts into another container (i.e., Baggie) then annotate the identification (NSN, Noun, Contract and Lot Numbers) and the quantity contents legibly on the new container prior to shipment, accompanied by the shipment s DD 1348-1/1a. DD Form 1574/-1 can be used in this situation as long as the remarks field is annotated with the statement: **ID PURPOSES ONLY** . However, under no circumstance will supply personnel sign DD Form 1574/-1 as to the condition of an item.

4.6.2.1.1. Condition: Under the following conditions, incoming property for expendable serviceable items can be received, stored, issued, or shipped without any condition paperwork of any kind (i.e., DD Form 1574, *Serviceable Tag-Materiel*, or DD Form 1574-1, *Serviceable Label-Materiel* or contractor forms i.e., FAA, *Certificate*

*Of Conformity*, DD Form 250, etc.,) as long as it appears not to be damaged, corroded, deteriorated, etc. If the actual property is in question, as to the condition, proceed to SDR procedures outlined in [paragraph 4.8](#). Under no circumstance will supply personnel sign DD Form 1574/-1 as to the condition of an item.

4.6.2.1.1.1. Items obtained for local use from shelf stocks of local vendors by means of local purchase when the identity is adequately indicated with commercial tags, labels, or markings (i.e., local purchase items).

4.6.2.1.1.2. Expendable items described in [paragraph 4.6.2.1](#).

#### 4.6.3. General Requirements For Both Repairable And Expendable Items:

4.6.3.1. Packages with single items of supply received in vendor-sealed containers are required to be opened for additional inspections or tagging as to condition and/or identification when subjected to one or more of the following actions:

4.6.3.1.1. Property has been used; been rendered incomplete; suffered obvious or suspected damage, deterioration, corrosion; or had latent defects disclosed.

4.6.3.1.2. Condition or status of the property has been changed by direction of higher authority.

4.6.3.1.3. Identification of the property has been lost, defaced, or obliterated.

4.6.3.1.4. The container shows evidence of possible damage to the materiel, or the item history dictates inspection action is required regardless of pack.

4.6.3.1.5. When the maximum operating time of the item is limited and partial service life has been accrued but the item is returned to serviceable stock after minor repair under the provisions of TO 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*.

4.6.4. Original containers affected by conversion to national stock numbers (NSNS) or superseded by new codes or stock numbers will not be opened solely for application of new Stock List Change (SLC) data to the individual item(s) while in storage. However, exterior original containers will be identified with the proper SLC data at all times, except in those instances when it is not economically feasible to remark each container in storage, due to quantity involved. In such instances, a sufficient quantity of items will be identified and re-tagged to facilitate issue and inventory. The location will be adequately marked, through use of a bin card, to indicate that some items have not been re-tagged. When issues or shipments are made, all items and/or unit packs, as well as outside or intermediate containers, will be marked with the current SLC data (MIL-STD-129).

4.6.5. All authorized DD Forms 1574, DD Forms 1575, *Suspended Tag-Materiel*, DD Forms 1576, *Test/Modification Tag-Materiel*, and DD Forms 1577, *Unserviceable (Condemned) Tag-Materiel*, series tags and labels will be prepared by imprinting or by mechanical equipment if the equipment is available and its installation is authorized. When small quantities are involved or mechanical equipment is not available, tags and labels may be prepared manually by the use of lead pencil, rubber stamp or non-smear ball-point pen. In instances where condition tags or labels would be subjected to conditions that would cause the ball-point pen ink to run or become illegible, the use of ball-point pens will not be utilized. Example--outside storage, wet areas, etc.

4.6.6. Metal tags, specification MIL-P-4745 (USAF), may be used to identify the contents of containers having only one line item and which are stored outside or being shipped overseas.

4.6.7. Metal embossing plates may be utilized for applying item description and other data to forms, tags, labels, listings, etc, at AF installations where equipment is authorized and available.

4.6.8. The supply inspector of the activity concerned will ensure that all materiel received, stored, issued, or shipped is properly identified, and the legibility and permanence of the information contained on tags, labels, and other markings are maintained.

#### **4.7. Authorization, Use, and Information to be Included on DD Forms 1574, 1575, 1576, and 1577 Series Condition Tags/Labels.**

4.7.1. The following forms are authorized for use indicating the condition and identification of the individual article or the contents of the package or container of any type to which they are securely attached.

4.7.1.1. DD Form 1574 and DD Form 1574-1, yellow margins and letters (match pantone 116).

4.7.1.2. DD Form 1575 and DD Form 1575-1, *Suspended Label-Materiel*, brown margins and letters (match pantone 470).

4.7.1.3. DD Form 1576 and DD Form 1576-1, *Test Modification Label-Materiel*, blue margins and letters (match pantone 279).

4.7.1.4. DD Form 1577 and DD Form 1577-1, *Unserviceable (Condemned) Label-Materiel*, red margins and letters (match pantone 186).

4.7.1.5. DD Form 1577-2, *Unserviceable (Reparable) Tag-Materiel*, and DD Form 1577-3, *Unserviceable (Reparable) Label-Materiel*, green margins and letters (match pantone 355).

4.7.1.6. AFTO Form 350, *Repairable Item Processing Tag*.

4.7.1.7. DD Form 2477, + replaces AF Form 2032, *Inspection Extension* to be used in conjunction with DD Form 1574 and DD Form 1575, as applicable, for updating inspection data resulting from re-inspection or laboratory testing results for shelf-life items.

**NOTE:** Property previously identified with AF Form 2032 can be exempt from using DD Form 2477 until such time as the property is required to be repacked, its condition or status is changed, or its identification is changed or obliterated.

4.7.1.8. DD Form 250, *Materiel Inspection And Receiving Report* originates from contractor-or vendor-originated shipments located in the packing list envelope affixed on the exterior of the shipping container.

4.7.1.9. DD Form 1348-1, *Dod Single Line Item Release/Receipt Document* or DD Form 1348-1/1a, *Issue, Release/Receipt Document* as outlined in [paragraph 4.6.1](#), [paragraph 4.6.2](#), and [paragraph 4.6.3](#).

4.7.2. The DD Form 1574 or 1574-1 will be used to indicate the identity and serviceable condition of property received, stored, and issued by the Air Force. Under Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP), these forms will apply to serviceable condition codes "A," "B," and "C". It is essential that all applicable blocks on the tag or label be completed to avoid unnecessary reinspection. This is particularly true on MILSTRAP condition codes "A," "B," and "C," when marking shelf-life materiel ([AFMAN 23-110V7PT3](#), *The Air Force Shelf Life Program*).

4.7.2.1. At the discretion of the major command (MAJCOM)/base, multiple inspector authenticating signature lines may be used on these forms on an optional basis. This option may be implemented/adopted by using a rubber stamp to overstamp two or more

signature/date lines or blocks on the front of the form. The multiple blocks/lines will facilitate the initial and follow-up inspection authentication on the same form when the condition of the materiel remains unchanged.

4.7.2.2. For time change/life limited items, the DD Form 1574 and DD Form 1574-1 must be annotated with current status of life consumed. Whenever an automated system is used to track consumed life, a computer generated printout of current life will be stapled to the DD form which is physically attached to the item.

4.7.3. The DD Form 1576 or 1576-1 (MILSTRAP condition code "D") is used to identify serviceable materiel which requires test, alteration, modification, conversion, or disassembly. At the option of a MAJCOM, DD Forms 1576 or 1576-1 may be used for items requiring functional checks.

4.7.4. The DD Form 1577-2 or 1577-3 will be used to tag any unserviceable (repairable) subassembly, assembly unit, group, set and/or accessory under MILSTRAP condition codes "E," "F," or "G". When the DD Form 1577-2 or 1577-3 is used to indicate an unserviceable item as defined under MILSTRAP condition "E" (limited restoration) and "G" (incomplete) that is not maintained or managed under AFR 66-1, a reason for repair, together with a complete listing showing stock number, quantity, and description of items short will be added. This listing may be placed on the reverse side of the tag or on a separate list securely attached thereto. The listing will be clearly identified as to reason for repair and/or items short on the identified article. HQ AFMC field activities operating in accordance with AFMCR 65-50 will provide a listing that identifies the applicable backorders established to repair "G" coded end items.

4.7.4.1. For condition "G" assets, the DD Form 1577-2/3 will be annotated with the serial/batch number of the item and the maintenance scheduler's name, organization symbol, and telephone number.

4.7.4.2. At the discretion of the MAJCOM/base, the DD Form 1577-2 or 1577-3 may be stamped with a large bold open face "INC-E" or "INC-G" on the face of the tag or label.

4.7.4.3. For time change/life limited items, the DD Form 1577-2 or 1577-3 must be annotated with current status of life consumed. Whenever an automated system is used to track consumed life, a computer generated printout of current life will be stapled to the DD Form 1577-2 or 1577-3 that is physically attached to the item.

4.7.5. The AFTO Form 350 will be used as prescribed by the TO 00-20-2 series or TO 00-20-3, as applicable to MILSTRAP condition codes "F" and "G" for items being processed according to AFR 66-1. Items coded incomplete "G" turned in to supply for accountability and control will be accompanied by both a completed DD Form 1577-2/3 series and an AFTO Form 350. HQ AFMC field activities will also provide a listing of item(s) on order to repair the end item. The AFTO Form 350 will remain securely attached to the item for return to the repair facility. A DD Form 1577-2 or DD Form 1577-3 will be securely attached on the outside of the shipping container. If a DD Form 1577-3 (label) is used on the outside of the shipping container, a DD Form 1577-2 (tag) will also be securely attached to the item. If no shipping container is used, the DD Form 1577-2 series tag will be securely attached to the item.

4.7.6. The DD Form 1575 or 1575-1 is used to identify materiel as follows:

4.7.6.1. Materiel (code "J") that has been suspended from issue pending condition classification or analysis where the true condition is not known.

4.7.6.2. Suspended/returned (code "K") from customers or users and awaiting condition classification. Air Logistic Center (ALC) activities may use this code for disassembled

materiel deficiency report (MDR) exhibits in accordance with criteria in volume 3, part 2, chapter 4, of this manual.

4.7.6.3. Suspended/litigation (code "L"). Stocks held pending litigation or negotiation with contractors.

4.7.6.4. Suspended/in work (code "M"). Materiel identified on inventory control record, but which has been turned over to a maintenance facility or contractor for repair.

4.7.6.5. Suspended/Quality Deficient Exhibits (code "Q"). Quality/materiel deficient exhibits returned by customers/users as directed by the item manager/system manager due to technical deficiencies reported by a Quality Deficiency Report. Exhibit requires technical or engineering analysis to determine cause of failure. This code is for intra-Air Force use only.

4.7.6.6. Suspended/reclaimed items awaiting condition determination (code "R"). Materiel reclaimed by inventory control points/item managers (ICPs/IMs) from activities that do not have the capability to determine materiel condition (e.g., skills, manpower or test equipment). Actual condition (serviceable or unserviceable) is determined at the repair facility and reported to the ICP/IM before issue or repair. This code is for intra-Air Force use only.

4.7.7. The DD Form 1577 or 1577-1 will require a mandatory entry as to the reason for condemnation and will be used to identify materiel as follows:

4.7.7.1. Unserviceable-Condemned (code "H"). This code applies to materiel which has been determined to be unserviceable and is uneconomical to repair, or condemnation has been directed by a time compliance technical order (TCTO).

4.7.7.2. Unserviceable-Reclamation (code "P"). This code applies to materiel determined to be unserviceable/uneconomically repairable as a result of physical inspection, tear down or engineering decision, but the item contains serviceable components or assemblies to be reclaimed.

4.7.8. DD Form 2477 will be used to update the DD Form 1574 and DD Form 1575, as applicable. The need to initiate a new DD Form 1574 or 1575 series tag will not be necessary. It is mandatory that all portions of the label be annotated and authenticated by the stamp/signature of the authorized inspector.

4.7.9. All condition tags (DD Form 1500 series) applied to external fuel tanks, fuel, oil, and water alcohol cells will be marked on the face of the tag, "Tank purged to LEL (Lower Explosive Level) reading of 5% and preserved in accordance with TO 00-85A-03-1, and date of action. Boxes or crates not requiring a DD Form series tag/label will be stenciled with the same statement (excluding new cells marked as prescribed in TO 00-85A-03-1) and completed action date.

4.7.10. Unit, intermediate, and exterior packs containing electrostatic discharge sensitive items susceptible to damage from environmental field forces (electromagnetic, magnetic, radioactive, and electrostatic due to environmental or mechanical processes) will be marked as such according to the requirement of MIL-STD-129.

4.7.11. Condition "X" materiel is unique and peculiar to ALC operations only, and will not be used by AF Standard Base Supply System (SBSS). Refer to [paragraph 4.20](#) of this chapter for management of materiel in condition code "X" at ALCs.

**4.8. Reporting Discrepancies.** Discrepancies in application of this section will be brought to the attention of the offending activity by preparing and processing an SF 364, *Report of Discrepancy* (chapter 5, section 5D). The determination of how and when corrective action should be taken depends



entirely on the source and nature of any discrepancy which would involve proper identification and condition of materiel. Any subsequent action to be taken should be determined only by qualified and authorized inspectors.

#### **4.9. Removal and Disposition of Tags and Labels.**

4.9.1. The chief inspector of the activity concerned is responsible for the removal, replacement, and necessary destruction or obliteration of authorized tags and labels. When serviceable AF property is placed in use or service, the DD Form 1574 or other serviceable parts tag (when attached to the item) will be removed and destroyed, unless the tag is required by applicable technical orders or directives; such as, life rafts, to remain with the item or otherwise be retained. Labels or other identification markings on containers will be obliterated unless required by directives to be retained, such as aircraft engine containers.

4.9.2. If necessary to maintain item identity on in-use organizational property, the identification marking used will be the most economical and practical as determined locally. However, this identification marking will not be used to indicate the condition of such property. In-use organizational property excess to requirements will be identified and condition tagged with the applicable DD Form 1500 series tag/label by the authorized maintenance or supply inspector prior to turn-in to the supply system (except custodial transactions within the equipment account).

4.9.3. Condition or status tags attached to property will not be removed and placed on shipping containers for identification purposes.

#### **4.10. Authorized Inspectors and Their General Responsibilities.**

4.10.1. The AF quality control representative is the quality control inspector directly responsible for government quality control functions at a particular facility or group of facilities, who is authorized to inspect and accept supplies and services for the government.

4.10.2. The maintenance inspector is a person authorized by the maintenance officer of an AF organization or activity to perform the following inspection functions:

4.10.2.1. Insure quality of production with respect to repair, overhaul, modification, local manufacture, or restoration to a serviceable condition of all materiel and equipment at AF activities according to standards prescribed by higher authority.

4.10.2.2. Determine the final condition of property repaired, reclaimed, manufactured by a maintenance activity or removed from service, condemned property when directed by higher authority, and, when requested, determine the final condition of property received or stored by a supply activity.

4.10.2.3. Insure that reinspection dates prescribed by technical orders are properly computed and entered on applicable tags or labels, or are included on the markings used in lieu of such tags and labels in connection with all property processed by the maintenance activity.

4.10.2.4. Maintain or re-establish the identification of materiel restored to a serviceable condition, and establish the identification of articles locally manufactured, as well those reclaimed or removed from major assemblies or complete units by a maintenance activity.

4.10.3. The supply inspector is a person authorized to perform the following inspection functions:

4.10.3.1. Establish and maintain the final identification and classification of all property received, stored, issued, or shipped.

4.10.3.2. Identify property known or suspected to be damaged or to have deteriorated or corroded during use, storage, or shipment.

4.10.3.3. Insure that reinspection dates prescribed by technical orders are properly computed and entered on the applicable tags or labels or are included on the marking used in lieu of such tags and labels to identify property received, stored, issued, and/or shipped by a supply activity.

4.10.3.4. Accept or reject property received on local purchase orders or contracts requiring inspection and/or acceptance at destination.

4.10.3.5. Ensure documentation accompanies (as noted in [paragraph 4.6.1.](#)) all property received, stored, issued, and shipped by a supply activity, and directed condemned property when such action is prescribed by directives of higher authority.

4.10.3.6. Establish and maintain inspection controls on materiel within the technical order compliance (TOC) category to insure that inspection dates will permit the availability of serviceable stock.

**NOTE:** When condition status is in question or when the serviceable tag has been lost, defaced or obliterated and not chargeable to the originator of the shipment, the logistics inspector/personnel must bench check the assets through authorized maintenance personnel to determine final condition. Under no circumstance will logistic inspectors/personnel sign a DD Form 1574/-1.

**4.11. Tagging of Excess Property.** Excess property authorized for transfer to the Defense Reutilization and Marketing Office (DRMO) will not be retagged with DD Forms 1577 or 1577-1 unless the property has in fact been properly condemned under conditions outlined in [paragraph 4.16.3.](#) The DD Form 1574, 1575 or 1576 series tags/labels or AFTO Form 350, when required, will remain affixed to the property and will be conspicuously stamped or marked as excess, unless the property is physically transferred to the DRMO.

**4.12. Identification of Multiple Packaged Items.** Each package or unpackaged component part which is physically unattached to an assembly, group, kit, or set, collectively identified and listed as a single item of supply, will be appropriately condition tagged or labeled. Entries on each condition tag or label will be made according to the appropriate block. The remarks box entry space on the applicable DD Form 1574, 1575, 1576, or 1577 series will be used to account for each packaged or unpacked component part of the assembly, group, kit, or set. Such entries will follow the fractional system of marking; that is, "1/4," "2/4," "3/4," etc. Local serial numbers for reference purposes will be established and used in the absence of previously assigned serial numbers. Provisions of this paragraph are not retroactive provided the affected items have been adequately tagged, labeled, or marked according to locally approved procedures.

#### **4.13. Authorization and Use of Supply Inspector's Stamps.**

4.13.1. Authorized AF supply inspectors may use (optional) the standard serially numbered stamp (NSN 7520-00-664-5907) in lieu of written signature. Local stamps may be obtained with a smaller design not exceeding 11/16" overall stamp die size. Elimination of the date bands permits a smaller stamp. Stamps must indicate the Air Force base and the assigned inspector number. The letters must be of sufficient size (minimum 1/16", 3/16" maximum) to facilitate the identification of the installation and the supply inspector. Stamps may be used by supply inspectors to authenticate DD Form 1500 series tags and labels, identification markings on containers, and receiving and release documents (except inspection and acceptance at destination receipts), etc. Supply inspector stamps will not be used to indicate acceptance of property received from contractors and vendors. Acceptance of materiel from central procurement and local purchase contracts will be indicated by signature.



4.13.2. The responsibility of the respective AF installation to assure a standard system for the control and issue of supply inspection stamps is as follows:

4.13.2.1. Control and Issue. Insure that controls and administrative procedures are established in the most economical and effective manner for the control and issue of supply inspection stamps

4.13.2.2. The individuals to whom inspection stamps are issued will be responsible for the proper use and safekeeping of the stamps while in their custody.

4.13.2.3. Stamps will normally be procured through local purchase. Serial numbers assigned will normally begin with number one and proceed in numerical order.

4.13.2.4. Unissued stamps will be safeguarded by the chief inspector to prevent unauthorized use or loss.

4.13.2.5. Loss. Insure that in the event a stamp is lost or stolen, the loss is to be reported in writing to the chief inspector within 24 hours. The chief inspector will, if circumstances warrant, issue a new serial numbered stamp to the individual. Pertinent facts concerning the lost, stolen, or worn stamp must include the stamp number, where the stamp was lost/stolen, circumstances involved and name of the individual. Every effort will be made to locate the lost or stolen stamp. No stamp bearing the same serial number will be issued until one year from the date of the loss. Take appropriate disciplinary action in cases of incorrect/dishonest use or unwarranted loss.

4.13.2.6. Loan. The lending of stamps is strictly prohibited and is cause for recall of the stamp and disciplinary action.

4.13.2.7. Termination. When an individual's duties as an inspector are terminated, insure that any issued stamps are returned. Stamps not returned must be accounted for as lost. Personnel removed from the certified master stamp record must return the stamp within 24 hours. Unsatisfactory performance, negligence, or failure to meet the required standards of certification may be cause for removal.

4.13.2.8. Temporary Assignment. Personnel temporarily assigned to perform inspection duties must be basically qualified prior to issuance of a stamp or assumption of duties. Certification by signature denoting inspection(s) performed (excluding contractual materiel acceptance) will be held to a minimum and stamps assigned if available.

4.13.2.9. Certification. Personnel being issued a supply inspection stamp will be certified by submission of evidence to the chief inspector of the concerned activity indicating that the individual is basically qualified or has satisfactorily achieved the level of competency for performing inspection duty.

4.13.3. Qualification requirements. The following are minimum basic requirements considered to be essential for the individual in order to adequately perform duties and responsibilities of a supply inspector.

4.13.3.1. Personnel must be thoroughly qualified in the use of technical orders, stock lists, parts catalogs, blue prints, and specifications to determine the completeness and/or condition of an item, and estimate the cost of its repair; the ability to use precision measuring devices such as calipers, micrometers, and wire gauges, and conduct product tests such as quick leak and vacuum/pressure retention tests to determine the condition of the equipment or its compliance with contract specifications.

4.13.3.2. Have a working knowledge of the applicable accounting system used at the activity where the inspector is assigned to assure the proper processing of condition/identity changes.

4.13.3.3. Individuals required to perform inspection in specialized areas such as fuels/lubes, lumber, munitions, weapons, small arms, preservation and packing, etc., will be certified as knowledgeable within the specialized area.

4.13.3.4. Be familiar with DoD statistical sampling plans in order to economically inspect materiel anywhere in the supply system for product and/or method characteristics.

#### **4.14. Care of Supplies in Storage.**

4.14.1. The care and preservation of supplies in storage are important responsibilities of the military services. Materiel may be subject to deterioration, corrosion, improper storage, technical order compliance action (excluding modification technical orders) which can make it totally or partially useless for the intended function.

4.14.2. The Air Force uses the care and preservation of supplies in storage (COSIS) policy contained in DODR 4145.19-1. DD Form 1227, *Care and Preservation Control and Historical Record*, has been rescinded. Stock on hand may be used until exhausted, at which time organizations or commands desiring to use the form may assign a local form number and reproduce the forms locally.

#### **4.15. Condition Inspection and Bench Check of Items Reclaimed at the AMARC.**

4.15.1. Basic AF policy and procedures for reclamation of USAF property are set forth in **AFMAN 23-110V6**, *Excess and Surplus Personal Property*, chapter 6. Detailed implementing instructions for identification of spares support reclamation requirements, establishment of programmed and nonprogrammed reclamation save lists, condition inspection and bench checks of reclaimed parts, and other functions related to reclamation of AF materiel are contained in AFMCR 65-31. Receipt processing will be according to chapter 5 of this volume/part.

4.15.2. Procedures contained in this paragraph provide for the shipment of apparently serviceable items (condition has not actually been determined) that are beyond the bench check/condition inspection capability possessed by the Aerospace Maintenance and Regeneration Center (AMARC).

4.15.2.1. Such items will be identified by AMARC as serviceable condition code "K" and tagged with a DD Form 1575 or 1575-1. The authority block of the tag or label will state: "AMARC ITEM. NOT BENCH CHECKED. Reference chapter 4." A stamp may be used for marking this authority block. It is not necessary that AMARC condition code "K" items be identified by a serviceable tag or label. However, all applicable blocks of the tag or label, DD Form 1575 or 1575-1, on AMARC items will be completed.

4.15.2.2. Shipment of condition code "K" items will be made by AMARC in accordance with instructions furnished by the IM. In the event the item becomes critical, an AMARC condition code "K" item may be shipped direct to the user, provided prior arrangement is made by the IM with the using activity to accept materiel in this condition.

#### **4.16. Processing Condemned Items.**

4.16.1. Condemned items will be listed on DD Form 1348-1, *DoD Single Line Item Release/Receipt Document* and processed according to **AFMAN 23-110V6, chapters 3 and 5**.

4.16.2. Condition condemnation is used to identify materiel condemned because of condition.

4.16.2.1. Condition condemnation includes that state in which an article cannot be repaired, or the estimated cost of repair including direct labor, direct materiel, indirect expenses, and other direct charges, exceeds the maximum repair allowance established for the item involved. Economical repair for AF property is established at 75% of the stock listed unit cost unless otherwise specified in technical orders or other published directives. (For example: For procedures for determining economical repair of food service equipment reference AFI 34-401) Cost estimates will be based on accomplishment of the required maintenance at the nearest facility (field maintenance shop or local commercial contractor) which has the repair capability and normally performs the same or similar type maintenance.

4.16.2.1.1. Direct labor is that labor, either military or civilian, which can be specifically identified to the repair job to be performed. This includes the direct labor hours expended, times the labor rate.

4.16.2.1.2. Direct materiel costs to be included in the estimated cost for repair for an item will include all materiel directly applied and identifiable to the item that requires repair. These include government furnished materiel, consumable items to be obtained from supply stocks at the standard inventory price, items to be procured from local services at the latest invoice cost, and items to be locally fabricated at the actual cost.

4.16.2.1.3. Indirect expense to be included in the estimated cost of repair for an item will include the indirect expense associated with repair process. This cost element will be determined by applying an indirect expense rate (expressed as dollar cost per direct labor man hour) to the estimated direct labor man hours. Costs shall include indirect costs of manufacturing or production expense incurred within or identifiable to the maintenance shop or organization where the repair work will be performed, general management or supervision costs which are measurable and chargeable to maintenance activities, etc.

4.16.2.1.4. Other direct charges will include the cost of contractual service required incident to or identifiable with the performance of all or a portion of the specific maintenance job. If a contractor is to perform a significant portion of the maintenance job, the cost estimate will show the project charges for labor and contractor furnished parts in addition to the contractual expenses. When an item cannot be repaired on site, costs to prepare items(s) for shipment will be included. When an item is located overseas, and no local repair capability exists, costs of freight for shipment to the United States will be added. Any other charges required to accomplish the required maintenance and directly identifiable to the repair will be included, although not specifically mentioned herein.

4.16.2.2. Items expendability, recoverability, repairability category coded "XD" with a unit cost of \$1,000 or more will not be condemned at field level regardless of the 75% repair allowance unless damaged or worn totally beyond repair, directed condemned, nonlisted in USAF Federal Supply Catalog, coded "DSP," or normal source of supply is local purchase or local manufacture.

4.16.2.3. This implements DODI 7220.21, *Uniform Criteria for Repair Cost Estimates Used in Determination of Economical Repair*.

4.16.3. Directed condemned material listed in urgent or immediate action TCTOs will be processed in such a manner that will insure prompt retagging of spares to condition code "H" (unserviceable condemned) on DD Forms 1577/1577-1 and processing to the DRMO. Material directed condemned under routine TCTOs will not be retagged as condition code "H." This

material will remain in stock under the appropriate condition code ("A," "B," "C," etc.) until such time as the IM directs movement of the material. At that time, material will be processed to the DRMO under the appropriate condition code, properly tagged with the applicable DD Form 1500 series tags/labels.

#### **4.17. Inspection of Dated Items in TCTO Kits.**

4.17.1. TCTO kit(s) will, upon receipt by the using activity, be inspected to assure that shelf-life items listed in the TCTO bill of materials (reference **volume 3, part 1, chapter 11**; MIL-T-38804 (USAF); and TO 00-5-15) with an appropriate date control processing code in accordance with AFMAN 23-110V7PT3 are brought to the attention of the kit control monitor.

4.17.1.1. The kit control monitor will maintain control of the shelf-life items contained within each kit by kit stock number. Normal shelf-life control procedures will apply to the dated items. Kits with outdated items will be condition coded "E" (limited restoration) until the outdated item is replaced through requisitioning procedures (Type I). Type II items will be updated by inspection of the item and the DD Form 1574-1 or container updated utilizing AF Form 2032. Upon completion of inspection or replacement of the outdated material, the kit will be placed in the appropriate condition code ("A," "B," "C"). (See **chapter 10, attachment 10Q-1** for code definitions.)

4.17.1.2. TCTO kits found to contain items that need repair will be tagged condition code "G" (unserviceable/incomplete). The repairable items will be tagged "reparable (code "F")" and turned in for repair. The kit monitor will immediately requisition replacements to return the kit(s) to complete (issuable) status.

**4.18. Tagging Automotive Tires (FSC 2610).** The following MILSTRAP condition codes, as defined in **volume 1, part 4, chapter 1, attachment 1A-19**, are modified as follows for use in identifying the condition of USAF vehicle tires (FSC 2610) during receipt, storage and issue processing by non-SBSS accounts within the Air Force. Activities that operate under the SBSS will use **AFMAN 23-110V2PT2, chapter 21** to manage retread/recap tires

**Table 4.1. Title and Definition.**

<b>Code</b>	<b>Title</b>	<b>Definition</b>
A	Serviceable (issuable without qualification)	New-Issuable to all customers without limitation or restriction.
B	Serviceable (issuable with qualification)	Retread/Recap-Issuable for its intended purpose but which is restricted from issue to specific units, activities, etc.
C	Serviceable (priority issue)	Used-Issuable to selected customers but which must be issued before condition "A" or "B" (except as specifically exempt by other directives, such as, FMS, emergency vehicles, etc.).

#### **4.19. Tagging Requirements for Materiel Directly Affected by TCTO.**

4.19.1. Applicable to the ALCs.

4.19.1.1. Materiel spares in stock with outstanding TCTO requirements will be tagged TOC, condition code "D" with a DD Form 1576/1576-1 upon receipt of the TCTO except when the TCTO will change the item's form/fit/function (change in NSN and part number), or when specific serial number controlled items are affected. In the case of serial number controlled items, only the serial numbers identified will be tagged TOC.

4.19.1.2. There are instances when only a portion of the existing stock may require TOC action. However, all units in stock will be tagged TOC upon receipt of the TCTO. The IM will treat these items as management review items in accordance with volume III, part one, chapter 11, and volume III, part three, chapter 11.

4.19.1.3. When serviceable materiel with no outstanding TCTOs is turned in from organizational/intermediate or depot level maintenance to supply, the serviceable tag/label (DD Form 1574/1574-1) will be annotated with the following phrase in the remarks block: "The following TCTOs have been complied with: (list all TCTO numbers in the remarks block and/or on the back of the tag)." The annotation is not required whenever the item being returned has undergone TOC action involving modification and resulted in a change in NSN or part number. Material being turned in to supply with an outstanding TCTO(s) will be tagged with a DD Form 1576/1576-1 tag or label as condition code "D" (TOC), and the phrase "TCTO (numbers(s)) not complied with" will be annotated in the remarks block.

4.19.1.4. Material in a condition other than serviceable will not require tagging as TOC. The maintenance activity will determine outstanding TCTO requirements at the time of repair.

4.19.2. Applicable to AF bases. AF bases will follow the guidelines in **AFMAN 23-110, Volume 2, Part 2, Chapter 14, Section B**. Inspection must tag all items assigned numeric parts preference code "4" (NPPC 4) or TCTO flag with DD Form 1576/1576-1.

**4.20. Management and Control of Materiel in Condition Codes "P," "Q," "R," and "X."** Applicable policy/procedures have been moved to **AFMAN 23-110, Volume III, Part 3, Chapter 2, Paragraph 2.21**.

**4.21. Management and Control of Suspended Assets in Storage.** Applicable policy/procedures have been moved to **AFMAN 23-110, Volume III, Part Three, Chapter 2, Paragraph 2.21**.

**4.22. Reserved for Future Use.**

**4.23. Reserved for Future Use.**

**4.24. Reserved for Future Use.**

**4.25. Reserved for Future Use.**

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**4.26. Reserved for Future Use.**

**4.27. Reserved for Future Use.**

**4.28. Reserved for Future Use.**

**4.29. Reserved for Future Use.**

**4.30. Reserved for Future Use.**

**4.31. Reserved for Future Use.**

**4.32. Reserved for Future Use.**

**4.33. Reserved for Future Use.**

**4.34. Reserved for Future Use.**

**4.35. Reserved for Future Use.**

## ***Section 4C—Storage And Handling Of Lithium Batteries***

### **4.36. General.**

4.36.1. For the purpose of clarity, "lithium batteries" refers to the entire family of batteries or cells that consists of lithium metal and some other chemicals (such as, sulfur dioxide, methyl cyanide, lithium bromide, etc.) that are used as the source of energy.

4.36.2. When the lithium-sulfur dioxide cells were first made, there was an excess of lithium anodic material compared to the sulfur dioxide material. These were subsequently called unbalanced cells. Although high performances were achieved with batteries using these cells, several safety problems were encountered. Under high rate, overcharge, cell reversal, and low temperature with subsequent heating conditions cell venting, eruptions, overheatings, and flammability were observed. These conditions are minimized with a balanced cell formulation, such as, with the lithium to sulfur dioxide ratio at 1.0 plus or minus 0.1, plus the use of protective devices such as diodes, time delay fuses, thermal devices, and limiting discharge depth. All batteries made for the last several years have been made with balanced cells. Undesirable side reactions which produce such products as methane gas and cyanide are significantly reduced.

4.36.3. Lithium cells are hermetically sealed in a nickel-plated or stainless steel case. This means that anything which causes the internal pressure to increase could result in a cell rupture. Each cell has a venting mechanism which consists of a weak spot in the cell which can release when the internal pressure in the cell reaches approximately 400 pounds per square inch. The venting would occur suddenly and release toxic materials. The following conditions can cause an increase in internal pressure and are to be avoided:

4.36.3.1. An overcharge.

4.36.3.2. A high rate of discharge, such as a short across the terminals.

4.36.3.3. High outside temperatures, such as a fire.

4.36.3.4. Recharging.

4.36.4. Lithium batteries contain some materials which are toxic, such as sulfur dioxide. Under certain conditions, reactions can take place which can be violent in nature and form small amounts of poisonous compounds such as cyanide. The batteries also contain hazardous chemicals and their disposal must be handled as hazardous waste.

4.36.5. Packaging requirements for transporting lithium batteries are identified in AFR 71-4, chapters 3 (mobility) and 7, and in the Department of Transportation exemption 7052(DOT-E 7052). Marking requirements are specified in MIL-STD-129 and Code of Federal Regulation (CFR) 49, parts 178 through 199.

### **4.37. Storage.**

4.37.1. The proper storage for lithium batteries depends on the size of the battery and not just the fact that it is a lithium battery. The size affects two aspects of storage:

4.37.1.1. Whether the area should be sprinkler protected. For most normal size batteries, sprinklers are preferred. However, for very large batteries, such as the 10,000 amp hour batteries used in missile silos, the sprinklers are not recommended. The reason being that lithium metal reacts violently when exposed to water. If possible this type of lithium battery should be stored in a cool dry environment.

4.37.1.2. How many batteries should be stored in a stack.



4.37.2. New or unused batteries shall be stored as follows:

4.37.2.1. Lithium batteries shall be stored in individual/original manufacturer or shipping containers, one item per package, to ensure that there is no direct contact between any two batteries or cells. Personnel engaged in storing, handling, or moving lithium batteries will exercise caution to avoid crushing or puncturing any package.

4.37.2.2. Due to the potential hazards involved in the storage and handling of lithium batteries, the stock levels for these items shall be kept at the absolute minimum necessary to support mission requirements. When a small quantity of lithium batteries are being stored, refrigerated storage may be used.

4.37.2.3. The preferred storage location for lithium batteries is in a flammable or hazardous materiel storage facility. The area used for the battery storage shall be separated from the remainder of the facility by a three-hour fire rated construction (preferable masonry), with the exception that the quantities of two pallet loads or less may have only two-hour fire rated separation. No flammable or combustible liquids will be permitted within the battery storage area. Storage locations which minimize personnel exposure should be selected. The locations should be approved by the base fire protection agency.

4.37.2.4. The storage facility shall be cool, well ventilated, and equipped with a sprinkler system (except as noted above). The batteries are containerized; therefore the sprinkler system should contain the fire and suppress ignition of the lithium metal if a fire occurs in the battery storage area. Lithium battery storage areas should have signs prominently posted for identification.

4.37.2.5. A dry powder (class D) portable fire extinguisher will be strategically located in the battery storage area to assist in firefighting efforts. Halon fire extinguishers must not be used on burning lithium. Halon and lithium react violently and release highly toxic compounds. Some chemical solutions in the lithium batteries, such as thionyl chloride, are extremely toxic. Recommend Bioenvironmental Engineering (BEE) be contacted for advice concerning proper emergency breathing apparatus for the battery storage area.

4.37.2.6. Fire protection officials and BEE shall be notified of which facilities are being used to store lithium batteries.

4.37.2.7. U.S. Army Electronics Technology and Services Laboratory (ERADCOM) recommends storage of lithium batteries in an area or facility where temperatures will not exceed 130 degrees Fahrenheit.

4.37.2.8. The following alternative storage options may be used when optimum storage facilities are not available. These options are listed in descending order of preference. Caution: These options should only be considered as a temporary fix until optimum storage can be achieved.

4.37.2.8.1. Separate fire area in storage shed or ventilated locker.

4.37.2.8.2. Separate fire area within a general storage facility.

4.37.2.8.3. If the values at risk (building and contents at replacement cost ) are limited or when a loss of the building can be borne (not of vital mission support) a single pallet or less of lithium batteries may be stored in a general purpose storage area without the special fire-rated cutoffs discussed above. The facilities must meet USAF and National Fire Protection Association standards.

**NOTE:** In examples above all three-hour and two-hour fire-rated construction rules apply. Also no

flammable or combustible liquids will be stored within the battery storage area. All storage locations should minimize personnel exposure and be approved by the base fire protection agency.

4.37.3. Used, damaged, or condemned batteries shall be stored in the following manner (supply activities).

4.37.3.1. Batteries in any of these categories will be stored temporarily (less than 90 days) and separately from serviceable assets. Storage in excess of 90 days must be in a Resource Conservation and Recovery Act permitted hazardous waste storage facility (interim or final). Batteries will be packaged and processed for turn-in to the Defense Reutilization and Marketing Office prior to temporary storage according to DOD 4160.21-M, *Defense Materiel Disposition Manual*. Normal fire protection and safety requirements apply to materiel stored in any of these categories.

4.37.3.2. Used, damaged, or condemned batteries must be managed under the hazardous waste regulations pertaining to accumulation time and facility holding requirements. The environmental agency should be notified whenever a battery is damaged and no longer capable of performing its intended purpose.

4.37.3.3. Used batteries shall not be pierced, crushed, burned, dropped, cannibalized, dismantled, or carelessly handled, nor shall they be intentionally short-circuited, recharged, or reused. (Reuse does not pertain to removal and reinstallation of serviceable batteries.) Some lithium batteries are unbalanced and have been determined to be potential hazards whenever they undergo excessive current drain (as in short circuits) or are unparalleled without diode protection. These batteries must be equipped or packaged in such a manner as to prevent accidental short circuit. Battery containers shall be marked with hazardous waste labels according to federal and state regulations.

#### **4.38. Precautions for Handling and Use.**

4.38.1. Lithium batteries contain pressurized cells similar to aerosol cans. Any attempt to disassemble, open, or mutilate them could result in injury or fatality.

4.38.2. Heating or incinerating lithium batteries may produce internal pressure at a rate in excess of venting capacity which will cause the battery to explode.

4.38.3. Lithium batteries will never be recharged. Such action may lead to venting, rupturing, or possibly a fire.

4.38.4. Keep batteries in original protective packaging until ready for use/installation in equipment.

4.38.5. When not in use, remove batteries from equipment. Equipment will not be turned in or stored with batteries installed.

4.38.6. Nonsupply users (who are responsible for removal) should be advised of handling/storage procedures for new/used batteries.

4.38.7. Use lithium batteries only in equipment that is designed to be energized by lithium batteries. Extreme care and proper protective equipment, such as splash shields, mask, rubber gloves, and apron, must be used when handling leaking or damaged batteries. Leaking or damaged lithium batteries can be identified by a yellowish-brown stain which will appear on the inside of the storage container. If leaking is detected, immediately inspect all other lithium battery containers for additional leakage. Leaking batteries should be disposed of in accordance with procedures contained in [AFMAN23-110V6](#) and DOD 4160.21-M.

- 4.38.8. Special precautions identified in the literature or instructions provided by the manufacturer and not covered by this guidance must be complied with by all users.
- 4.38.9. Any person who detects a noxious gas, such as sulfur dioxide, in an area where batteries are stored should leave the area immediately and call the base BEE office.
- 4.38.10. Smoking is prohibited in battery storage areas except in designated smoking areas.
- 4.38.11. Under no circumstances shall lithium batteries or cells be handled, placed, or transported with flammable liquids or gases, or a significant concentration of flammable fumes.